

CANCER INCIDENCE AND PREVALENCE

CANCER INCIDENCE BY PRIMARY SITE

All 1999 incidence data contained in this section are reported as of October 1, 2000. Mortality data are for the entire calendar year. Montana's 1999 cancer incidence reporting was approximately 78% completed on this date with 3,142 new cancer diagnoses having been reported for 1999. For this reason, many multi-year comparisons exclude 1999. The expected number of Montana cancer cases for 1999 is 4,020. Estimates of Montana's expected cancer cases are based on Montana's population adjusted to the national Surveillance, Epidemiology, and End Results (SEER) rates to estimate age-specific expected cases. The age-specific rates are totaled to determine yearly estimated cancer cases expected.

Table 29 shows reported incidence of cancer for Montana residents diagnosed in 1999. The table shows cancer incidence by sex and by primary site--the original bodily location or organ system of the cancer. The most frequently diagnosed cancers were of the female breast (18.3% of all cancer diagnoses), the lung and bronchus (12.5%), the prostate (15.8%), the colon (8.2%), the urinary bladder (4.3%), Hodgkin's and Non-Hodgkin's Lymphoma (3.9%) and the rectum and rectosigmoid (3.2%). Invasive cervical cancer accounted for less than 1% of cancer diagnoses (2.4% for both in-situ and malignant) for Montanans for 1999. However, 49 of the 73 cervical cancers were in-situ--that is, non-invasive. Testicular cancer also accounted for less than 1% of cancer diagnoses—only 19 cases were reported in 1999.

Table 30 shows the incidence of cancer for the ten most frequently diagnosed primary sites and by the sex and age of the patient at diagnosis. Men diagnosed with prostate cancer tended to be 55 or older. Diagnoses of breast cancer in women generally began in their early thirties and the age distribution was not as concentrated on a central age category as was that of prostate cancer for men. In 1999, Montanans diagnosed with cancer of the lung and bronchus or the urinary bladder were most likely to be men aged 50 or older. Those diagnosed with cancer of the colon were about equally likely to be male or female and usually 50 years of age or older. The distribution of 1999 cancer diagnoses by site, sex, and county of residence is shown in **Table 31** for the 10 most frequently diagnosed primary sites.

Figures 55, 57, 59, and 61 show the number of cancer diagnoses by year, sex of the patient, and stage of disease at diagnosis for prostate, breast, lung, and colorectal cancer. The stage of disease is recorded at the time of diagnosis and is not updated as the cancer progresses. Diagnosis at a localized stage means that the cancer has not spread beyond the organ or site of origin. Diagnosis at a regional stage means the cancer has spread to adjacent organs or regional lymph nodes. Diagnosis at a distant stage means the cancer has spread past adjacent organs or tissues to lymph nodes or organs elsewhere in the body.

Figures 56, 58, 60, and 62 show the five-year relative survival rates for these same cancers, comparing Montana and the United States. The five-year survival rate is the percent of all patients who are living five years after diagnosis, whether the patient is in remission, disease-free, or under treatment. These rates have been adjusted to account for patients dying from causes other than cancer.

PROSTATE CANCER

Prostate cancer was the most common cancer diagnosed in men in Montana and the United States, with 497 cases reported for 1999 in Montana. This incidence rate usually exceeds that of lung cancer. Nationally, it is primarily a disease of the elderly, as the median age at diagnosis is 70. In 1999, 128 Montana residents died of prostate cancer (**Table 9**), making it the third leading cause of cancer deaths.

Figure 55 shows the number of prostate cancer diagnoses reported by year and the stage at diagnosis for the years 1990 through 1999. The patient diagnosed with prostate cancer at early stages may be asymptomatic or just have symptoms of lower urinary tract obstruction. In 1999, 60% of prostate cancers were diagnosed at a local stage. Bone pain is the most frequent complaint from patients diagnosed with advanced disease. In Montana, the percentage of prostate cancers diagnosed at a distant stage decreased from 10% in 1990 to 3% in 1999. The Prostate-Specific Antigen (PSA) test has been useful in detecting prostate cancer at earlier stages. About 90% of cancers of the prostate are characterized as adenocarcinomas.

Figure 55

**DIAGNOSIS OF PROSTATE CANCER
MONTANA RESIDENTS, 1990-1999**

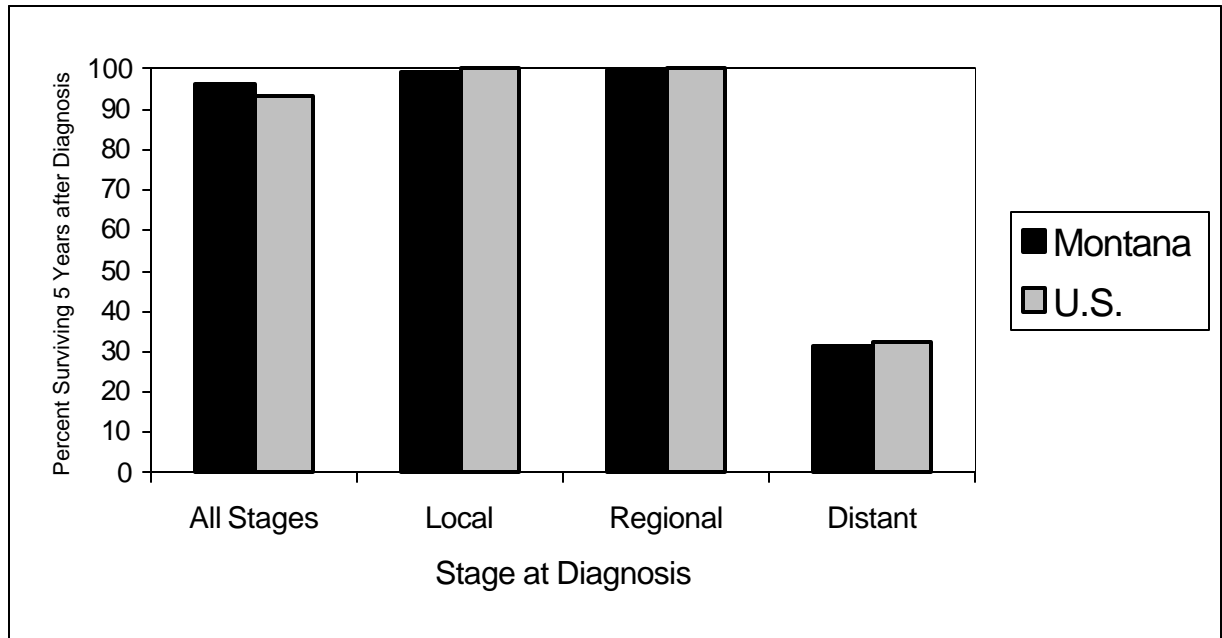
Year of Diagnosis	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Number of Cases Diagnosed	545	625	806	791	626	720	650	623	638	497
Percent Stage at Diagnosis*										
In-Situ	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
Local	63%	54%	60%	60%	64%	61%	56%	58%	62%	60%
Regional	14%	17%	19%	19%	16%	13%	17%	12%	14%	14%
Distant	10%	10%	8%	7%	6%	5%	5%	6%	5%	3%
Unknown	13%	20%	13%	14%	14%	21%	22%	23%	19%	24%

* Percents may not add to 100% because of rounding.

Figure 56 shows five-year survival rates for prostate cancer, comparing Montana's to the United States' rate. Over 99% of Montanans diagnosed at a localized or regional stage were alive five years after diagnosis; however, only about 31% of those diagnosed at a distant stage were alive five years after diagnosis. Although survival rates are high for early diagnosis, it should be re-emphasized that prostate cancer was the third leading cause of cancer deaths among Montanans in 1999.

Figure 56

**FIVE-YEAR RELATIVE SURVIVAL BY STAGE AT DIAGNOSIS FOR PROSTATE CANCER
MONTANA AND THE UNITED STATES, 1990-1999**



Prostate cancer is generally treated with surgery or radiation. About 40% of patient's diagnosed with prostate cancer have surgery (prostatectomy) within four months after diagnosis. Patients with early stage prostate cancer often opt for no treatment, but these patients must be watched closely by their physicians. About 30% of prostate cancer patients are treated with radiation. About 25% are treated with hormonal therapy shortly after diagnosis, but this course of treatment is usually reserved for patients with advanced disease.

BREAST CANCER

Breast cancer was the most frequently reported malignancy among Montana women for 1999, with 574 cases reported as diagnosed. It was the underlying cause of death for 125 Montanans in 1999 (**Table 9**), making it the fourth most frequent cause of cancer deaths. Breast cancer incidence increases dramatically with age, and the majority of cases occur after age 50. In Montana in 1999, 19% were diagnosed at an in-situ stage, 50% of breast cancers at a local stage, 24% at a regional stage, and 3% at a distant stage.

The distribution of stage at diagnosis is shown in **Figure 57**. The proportion of patients diagnosed at an in-situ stage has increased slightly over the past decade, while the proportion diagnosed at a distant stage has decreased. Patients are being diagnosed at earlier stages and are detecting cancers earlier. Breast self-examination (BSE) may detect about 60% of breast cancers. Patients who perform routine BSE find smaller lesions and it is well established that women with early-stage breast cancer have better chances of survival. Screening mammography can detect a breast cancer in an earlier stage, which may account for an increase in the diagnosis of breast cancer nationally over the last decade.

Figure 57

**DIAGNOSIS OF BREAST CANCER
MONTANA RESIDENTS, 1990-1999**

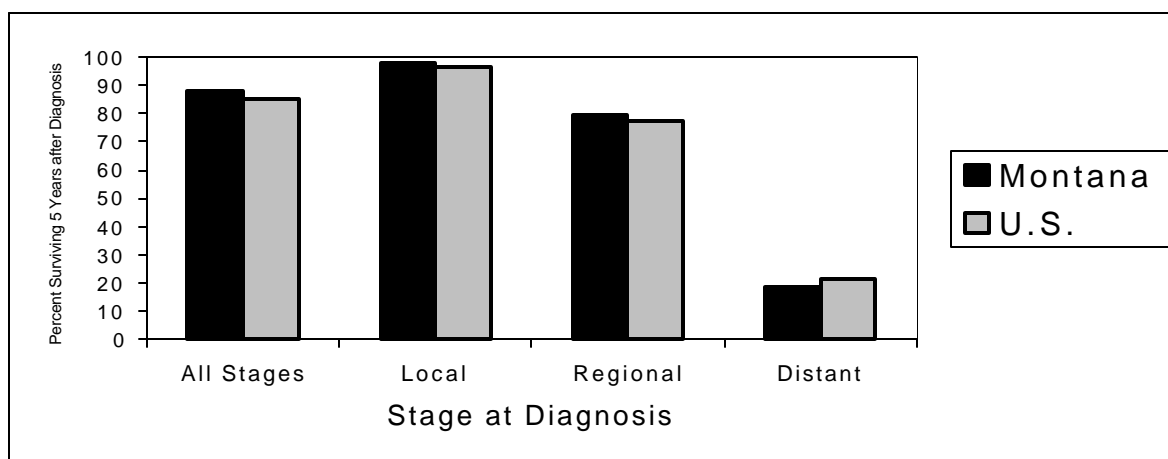
Year of Diagnosis		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Number of Cases Diagnosed	Males	2	3	2	5	4	1	1	5	5	2
	Females	532	549	602	666	626	685	740	675	694	572
Percent Stage at Diagnosis*											
In-Situ		4%	6%	9%	7%	10%	12%	12%	14%	15%	19%
Local		61%	56%	54%	59%	56%	56%	54%	49%	52%	50%
Regional		25%	27%	26%	25%	24%	21%	24%	29%	26%	24%
Distant		4%	4%	2%	3%	6%	4%	3%	3%	2%	3%
Unknown		6%	7%	8%	5%	4%	7%	8%	6%	4%	4%

* Percents may not add to 100% because of rounding.

Figure 58 shows the five-year relative survival rate for women diagnosed with breast cancer, comparing Montana with the United States. For Montana women, this rate was 98% at the local stage. Diagnosis at a regional stage decreases five-year survival to about 79%. If the cancer was diagnosed at a distant stage, the rate of survival was 19%. Breast cancer is treated in a variety of ways. Almost 95% of breast cancer patients are treated with surgery (lumpectomy or mastectomy) and about 40% are treated with radiation. About 40% are treated with both surgery and radiation. About 35% of patients are treated with chemotherapy, hormonal therapy or both. Almost 75% of breast cancers are duct cell carcinomas and over 10% are lobular carcinomas, which are a form of adenocarcinoma of the mammary gland.

Figure 58

**FIVE-YEAR RELATIVE SURVIVAL BY STAGE AT DIAGNOSIS FOR BREAST CANCER
MONTANA AND THE UNITED STATES, 1990-1999**



LUNG CANCER

In Montana, lung cancer was the second most common cancer diagnosis among men (after prostate cancer) and women (after breast cancer) for 1999; 393 new cases have been reported for 1999. It was the underlying cause of death for 505 Montanans (**Table 9**), making it the leading cause of cancer deaths. The incidence of lung cancer increased in males by about 10% from 1990 to 1999; the percentage increase in women was more than twice as large (30%).

The number of cases diagnosed and the stage at diagnosis for lung cancer diagnoses of Montanans are shown in Figure 53. In 1999, 40% of lung cancers were diagnosed at a distant stage and only 19% at a local stage. The stage was unknown or unstageable for about 13% of lung cases in 1999. Certain types of lung cancer spread very early and quickly, which causes the patient to be diagnosed at a regional or distant stage. Although genetic factors may predispose patients to develop lung cancer, environmental factors—exposure to cigarette smoke, for example—are responsible for the vast majority of cases.

Figure 59

DIAGNOSIS OF LUNG CANCER MONTANA RESIDENTS, 1990-1999

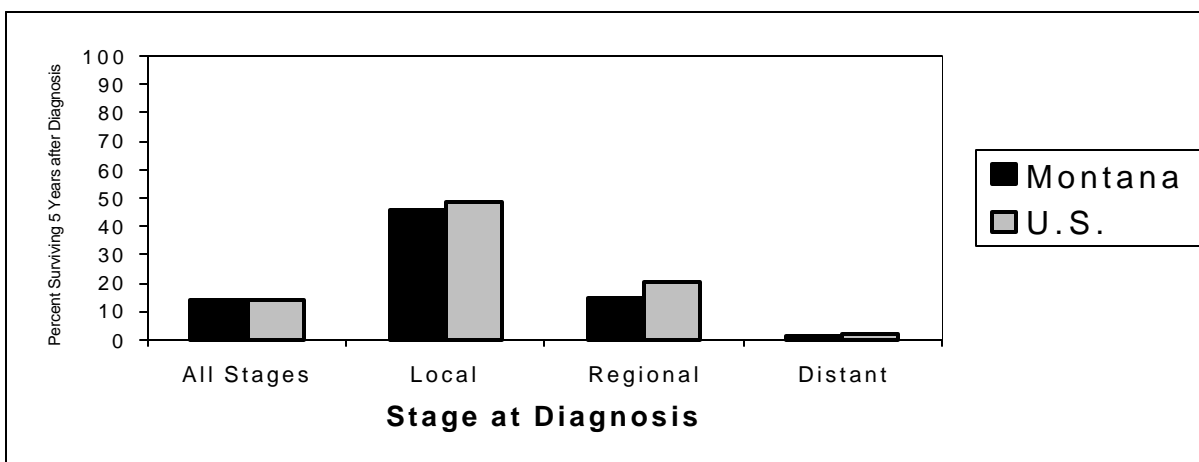
Year of Diagnosis		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Number of Cases Diagnosed	Males	280	304	308	306	316	363	374	328	388	229
	Females	170	194	202	212	227	252	252	264	298	164
Percent Stage at Diagnosis*											
In-Situ		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Local		27%	21%	22%	22%	22%	17%	19%	16%	17%	19%
Regional		22%	27%	25%	25%	24%	22%	20%	25%	25%	28%
Distant		32%	34%	39%	42%	38%	36%	38%	38%	40%	40%
Unknown		19%	17%	13%	10%	16%	25%	23%	21%	19%	13%

* Percents may not add to 100% because of rounding.

Lung cancer has a much poorer prognosis than other cancers, partly because relatively few cases are diagnosed at an early stage. **Figure 60** shows the five-year relative survival rate for lung cancer, comparing Montana and the United States rates. Forty-six percent of patients diagnosed at a localized stage survive five years; however, only 14% survive five years if diagnosed at a regional stage and less than 2% if diagnosed at a distant stage. Treatment methods for lung cancer are determined by the type of cancer and the stage at diagnosis. Most lung cancers are treated with surgery, radiation, or chemotherapy. About 23% of patients with lung cancer are treated with surgery and over 40% are treated with radiation. Chemotherapy is given to about 45% of patients. A cough is the most common symptom of a lung cancer, but since coughing is a common symptom of many acute and chronic conditions, the diagnosis of lung cancer may be delayed. Twenty-five percent of lung cancers are squamous cell carcinomas, derived from stratified squamous epithelium. Almost 25% are adenocarcinomas and 20% are carcinoma, NOS.

Figure 60

**FIVE-YEAR RELATIVE SURVIVAL BY STAGE AT DIAGNOSIS FOR LUNG CANCER
MONTANA AND THE UNITED STATES, 1990-1999**



COLORECTAL CANCER

Colorectal cancer was the fourth most common malignancy in Montanans for 1999; there were 357 cases diagnosed and 153 deaths caused by colorectal cancer in 1999 (**Table 9**). Because of the anatomic proximity and physiologic similarity of the colon and rectum, these two segments are often reported together as "co cancer." The incidence of colorectal cancer is extremely low in childhood and increases with age. **Figure 61** shows the frequency and stage at diagnosis for cancers of the colon and rectum. In 1999, 33% were diagnosed at a local stage, 44% at a regional stage, and 14% at a distant stage.

Figure 61

**DIAGNOSIS OF COLORECTAL CANCER
MONTANA RESIDENTS, 1990-1999**

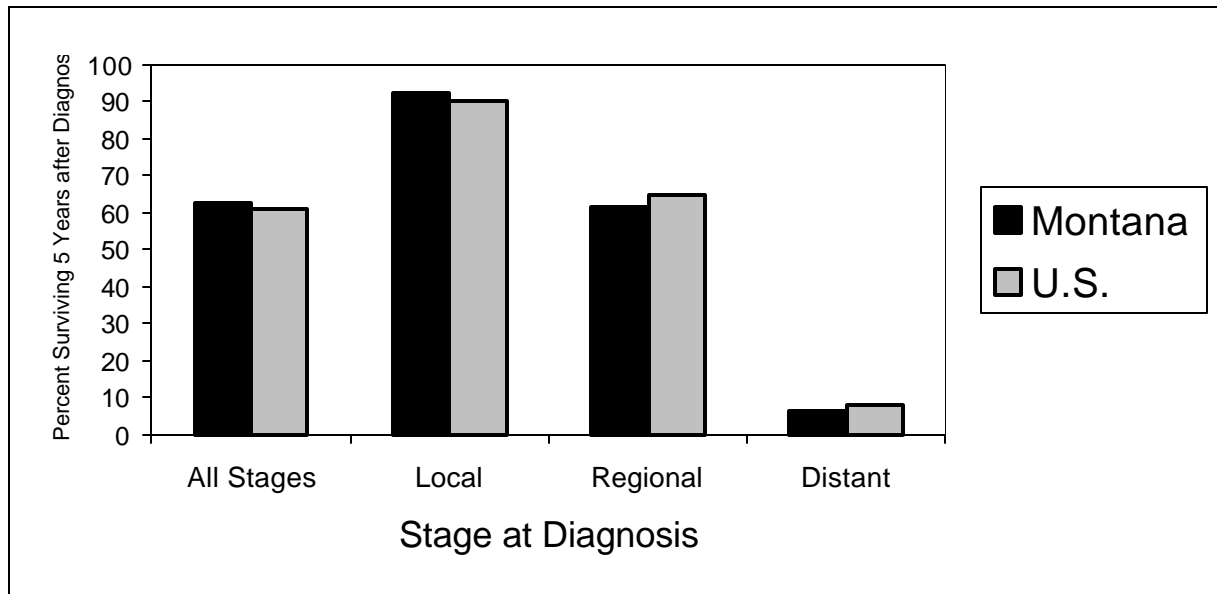
Year of Diagnosis		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Number of Cases Diagnosed	Males	237	249	222	225	223	232	257	254	275	196
	Females	202	207	191	203	221	230	231	229	232	161
Percent Stage at Diagnosis*											
In-Situ		3%	3%	2%	2%	2%	2%	3%	4%	4%	2%
Local		40%	40%	40%	34%	39%	32%	35%	35%	34%	33%
Regional		32%	32%	34%	40%	35%	38%	38%	38%	39%	44%
Distant		15%	17%	15%	16%	14%	14%	12%	15%	15%	14%
Unknown		10%	9%	9%	7%	9%	13%	12%	8%	9%	6%

* Percents may not add to 100% because of rounding.

Figure 62 shows the five-year relative survival of patients diagnosed with colorectal cancer, comparing Montana and the United States. When colorectal cancer is detected at an early, or localized, stage the five-year relative survival is almost 93%. After the cancer has spread to a regional organ or lymph node, the survival rate drops to about 60%. Colorectal cancer is mostly treated with surgery or chemotherapy or both. Almost 90% of patients with colorectal cancer are treated with surgery and about 35% are treated with chemotherapy. The use of chemotherapy to treat colorectal cancer has increased from about 30% to 35% in the last ten years. About 15% are treated with radiation. Over 70% of colorectal carcinomas are adenocarcinoma and 10% are mucinous adenocarcinoma (an adenocarcinoma which secretes mucin).

Figure 62

**FIVE-YEAR RELATIVE SURVIVAL BY STAGE AT DIAGNOSIS FOR COLORECTAL CANCER
MONTANA AND THE UNITED STATES, 1990-1999**



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